

I. Claims 1-7.

Independent Claim 1 recites a method of placing fluid droplets onto an object. The method includes the steps of moving a fluid ejection device including a carriage having an airflow reducing member and at least one fluid ejector carried by the carriage in a first direction, reducing airflow between said fluid ejection device and said object with the member leading the at least one fluid ejector and ejecting fluid droplets onto the object.

Tomoyuki fails to disclose a method of placing fluid droplets onto an object wherein a carriage having an airflow reducing member is moved. In contrast, Tomoyuki merely discloses a recording head 1 which ejects ink and which is carried in a carriage. (See paragraphs 10 and 11 of the English translation of Tomoyuki provided by the Examiner). The recording head 1, NOT carriage 5, is described as including the projection 2 (characterized in the Office Action as constituting an airflow reducing member). Nowhere does Tomoyuki appear to disclose or suggest that projection 2 may alternatively be formed on carriage 5. Accordingly, Tomoyuki fails to disclose a method of placing fluid droplets onto an object including the step of moving a fluid ejection device including a carriage having an airflow reducing member and at least one fluid ejector carried by the carriage. Thus, independent Claim 1 is believed to be patentably distinct over the prior art of record including Tomoyuki. Claims 2-7 depend from Claim 1 and are believed to be patentably distinct over the prior art of record for the same reasons.

II. Claims 8-15.

Independent Claim 8 recites a method for forming an image on media with an inkjet printing mechanism that includes an inkjet pen carriage. The method includes the steps of attaching an inkjet pen to the inkjet pen carriage and moving the inkjet pen and an airflow deflector provided by the carriage proximate the inkjet pen on the carriage in a first direction such that the deflector leads the pen to reduce airflow between the pen and the media.

Tomoyuki fails to disclose or suggest a method of forming an image on a media which includes the steps of moving an airflow deflector provided by the carriage. As noted above, Tomoyuki merely discloses the provision of projections 2 on recording head 1, not carriage 5.

No suggestion or motivation is provided by Tomoyuki for modifying Tomoyuki to alternatively provide projections 2 on carriage 5. Thus, independent Claim 8 is believed to be patentably distinct over the prior art of record including Tomoyuki. Claims 9-15 depend from Claim 8 and are also believed to be patentably distinct over the prior art of record for the same reasons.

III. Claims 16-24.

Independent Claim 16 recites an inkjet pen carriage for holding an inkjet pen. The carriage includes an airflow reducing member configured and positioned to at least partially block the flow of air between an ink ejection nozzle of a pen on the carriage and an object to be printed during carriage movement.

Tomoyuki fails to disclose an inkjet pen carriage having an airflow reducing member configured to at least partially block the flow of air between the ink ejection nozzle of a pen and an object being printed upon. As noted above, Tomoyuki merely discloses projections 2 on recording head 1, not carriage 5. The rejection of Claim 16 set forth in the Office Action mailed on August 6, 2003 with regard to the parent application Serial No. 10/142,631 relied upon the rejection set forth with respect to Claims 1 and 8. However, neither of such rejections explains where Tomoyuki allegedly discloses a carriage having an airflow reducing member. With respect to originally filed Claim 9 in parent application Serial No. 10/142,631 which recited that the airflow deflector is on the carriage, the Office Action referred to Figures 1 and 2. However, Figures 1 and 2 do not show an airflow deflector or an airflow reducing member on the carriage. The disclosure of Tomoyuki clearly distinguishes between the recording head 1 having projections 2 and the carriage 5 which carries recording head 1. Tomoyuki requires each individual recording head 1 to be individually provided with projections 2. In contrast, Claim 16 merely requires that only the carriage (which may be carrying multiple pens) have an airflow reducing member. Accordingly, independent Claim 16 is believed to be patentably distinct over the prior art of record including Tomoyuki. Claims 17-24 depend from Claim 16 and are believed to be patentably distinct over the prior art of record for the same reasons.

IV. Claims 25-34.

Independent Claim 25 recites an inkjet printing mechanism which includes a reciprocally movable pen carriage, an inkjet pen mounted on the carriage and an airflow deflector coupled to the carriage and positioned proximate the nozzle of the pen to at least partially block the flow of air between the nozzle and the media being printed upon.

Tomoyuki fails to disclose or suggest an inkjet printing mechanism which includes a reciprocally movable pen carriage, an inkjet pen mounted on the carriage and an airflow deflector coupled to the carriage. In contrast, as noted above, Tomoyuki merely discloses a recording head 1 having projections 2 and carried by carriage 5. Carriage 5 does not include an airflow deflector. Tomoyuki fails to provide any motivation or suggestion for its modification to alternatively provide carriage 5 with projections 2. Accordingly, Claim 25 is believed to be patentably distinct over the prior art of record including Tomoyuki. Claims 26-34 depend from Claim 25 and are believed to be patentably distinct over the prior art of record for the same reasons.

V. Claim 36.

Claim 36 recites an inkjet printing mechanism which includes a reciprocally movable pen carriage, an inkjet pen mounted on the carriage and means coupled to the carriage for deflecting and at least partially blocking the flow of air between the nozzle of the pen and the media being printed upon.

Tomoyuki fails to disclose a printing mechanism having means coupled to the carriage for deflecting and at least partially blocking the flow of air between the inkjet pen nozzle and the media being printed upon. As discussed above, Tomoyuki merely discloses projections 2 on recording head 1, not carriage 5. Thus, Claim 36 is believed to be patentably distinct over the prior art of record including Tomoyuki.

VI. Claims 37-40.

Independent Claim 37 recites a fluid ejection device that includes a reciprocally movably carriage, at least one fluid droplet ejector mounted on the carriage, a support for an

object onto which fluid droplets are to be ejected, and a deflector coupled to the carriage for deflecting airflow away from a trajectory of the fluid droplets being ejected from said ejector toward an object on the support.

Tomoyuki fails to disclose or suggest a fluid ejection device having a deflector coupled to the carriage for deflecting airflow away from the fluid droplet trajectory. In contrast, as discussed above, Tomoyuki merely discloses projections 2 extending from recording head 1, not carriage 5. Tomoyuki fails to provide any suggestion or motivation for alternatively modifying carriage 5 to include projections 2. Accordingly, Claim 37 is believed to be patentably distinct over the prior art of record including Tomoyuki. Claims 38-40 depend from Claim 37 and are believed to be patentably distinct over Tomoyuki for the same reasons.

V. Claims 41 and 42.

Independent Claim 41 recites a printing mechanism including a fluid ejection device and an airflow deflector coupled to the fluid ejection device, wherein the airflow deflector is flexible. Flexibility of the airflow deflector may result in several new advantageous functions not generally attainable with a rigid deflector. For example, in embodiments where the airflow deflector is tapered towards the print media (see page 7, paragraph 19 stating that “the deflectors 56, 58 may be angled or pointed in the direction of movement to function as a plow and deflect air away from the leading one of the moving pens 22.”), the airflow deflector may resiliently flex towards the print media when encountering high airflow velocities to even further reduce airflow between the fluid ejection device and the print media. Moreover, because the airflow deflector is flexible, the airflow deflector may flex when inadvertently contacting surface irregularities upon the print medium so as to avoid damage to the fluid ejection device. This may be especially important where the printing mechanism is being utilized to print upon a medium that is inherently irregular such as fabric or where the medium already has a preprinted surface. The flexible nature of the airflow deflector may enable the airflow deflector to be more closely positioned relative to the media for improved performance.

Paragraph 7 of the Office Action acknowledges that Tomoyuki fails to disclose deflectors that are flexible. As a result, the Office Action inappropriately relies upon MPEP 2144.07 in its assertion that “It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select a material to fabricate the projections, since it has been held to be within the general skill of a worker in the art to select a material, such as a flexible material for the projections as claimed in this claim on the basis of its suitability for the intended use.”

However, in its rejection of Claim 41, the Office Action overlooks the well-known exceptions that apply with respect to Claim 41. As set forth by the Supreme Court in the case of Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486, 493 (1877):

Where there is some such new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, although the only change in the machine has been supplanting one of its materials by another.

The substitution of materials may constitute an invention where it produces a new mode of operation or results in a new function. Yablick v. Protecto Safety Appliance Co., 21 Fed. 2d 885, 887 (1927 CA 3). See also Perma-Fit Shoulder Pad Co. v. Best Made Shoulder Pad Corp., 218 F.2d 747 (1955 CA 2).

In the present case, the use of an airflow deflector that is flexible provides a new and useful result that results in a new mode of operation or a new function as compared to the generally rigid projections 2 disclosed by Tomoyuki. As noted above, the flexible nature of the airflow deflectors recited in Claim 41 enables the deflectors to flex when encountering surface obstructions or irregularities upon the print media. As a result, airflow deflectors may be positioned more closely to the print media. Moreover, in those applications having angled or tapered airflow deflectors, the airflow deflectors may flex in response to high airflow velocities so as to automatically react to such high airflow velocities for improved printing performance. Tomoyuki fails to provide any motivation or suggestion for configuring projections 2 so as to be flexible. Because the flexible airflow deflector recited in Claim 41 provides new and unique functions or modes of operation, Claim 41 falls within the well-

known exception to the general rule relied upon the Office Action and is patentably distinct over the prior art of record including Tomoyuki. Claim 42 depends from Claim 41 and is also patentably distinct over the prior art of record for the same reasons.

VI. Conclusion.

Claims 1-42 of the continuation application are patentably distinct over the prior art of record for the reasons discussed above. Consideration and allowance of Claims 1-42 are respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

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